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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/888,017	06/21/2001	Craig Lyle Stevens		7519

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DeGuzman, Okamoto & Benedicto LLP  
2672 Bayshore Pkwy, Suite 509  
Mountain View, CA 94043

EXAMINER

MOORE, KARLA A

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Applicati n N .</b> 09/888,017	<b>Applicant(s)</b> STEVENS, CRAIG LYLE	
	<b>Examin r</b> Karla Moore	<b>Art Unit</b> 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondenc address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 March 2003.
- 2a) ☐ This action is **FINAL**.
- 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 and 13-20 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 13-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 October 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some \* c) ☐ None of:
    - 1. ☐ Certified copies of the priority documents have been received.
    - 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    - 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  - \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachm nt(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8,10.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 5-6, 8,13-14, 17 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Publication No. 2002/0031420 A1 to Kroeker.

3. Kroeker discloses a wafer processing system in Figure 12, comprising: a loading station (606); a process module (three chambers, 604) maintained at a predetermined pressure during normal operation (page 4, paragraph 41); and a first single-wafer load lock (200, also see Figures 2 and 3) directly adjacent to the process module having a single wafer support (page 3, paragraph 33), the first single-wafer load lock being coupled to receive a wafer originating in the loading station (page 6, paragraph 58).

4. With respect to claim 2, the system further includes a second single-wafer load lock (see Figure 12) directly adjacent to said process module, the second single-wafer load lock having a single wafer support (see Figures 2 and 3).

5. With respect to claim 3, the process module includes a plurality of processing stations (Figure 12).

6. With respect to claims 5, 14 and 17, the system further comprises a robot (Figure 12, 602; page 6, paragraph 58) between the loading station and the first single-wafer load lock.

7. With respect to claim 6, each of the load lock may have a pump dedicated exclusively to evacuating the respective load lock (page 2, paragraphs 32)

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8. With respect to claim 13, each of the load locks has an opening in communication with the processing module (Figure 2, 248) and another opening in communication with the loading station (Figure 2, 266; page 6, paragraph 55).

9. With respect to claim 19, as noted above, the process module comprises a plurality of processing stations (604).

10. Claims 13 and 17-20 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Publication No. US 2002/0033136 A1 to Savage et al.

11. Savage et al. disclose a wafer processing system in Figure 2, comprising: a loading station (6,7); a process module (multiple chambers, 40) maintained at a predetermined pressure during normal operation (page 3, paragraph 39); a plurality of load locks (80), each of the plurality of load locks having an opening in direct communication with the processing module; and a robot between the loading station and the plurality of load locks, the robot capable of transferring a wafer from the loading station to a load lock in the plurality of load locks (page 3, paragraph 47).

12. With respect to claim 17, the robot is an atmospheric robot (Figure 2, 8; page 3, paragraph 48).

13. With respect to claim 18, the loading station includes a front-opening unified pod (Figure 2, 7; page 3, paragraph 48).

14. With respect to claim 19, the process module includes a plurality of processing stations (page 3, paragraph 47).

15. With respect to claim 20, at least one of the plurality of processing stations of is capable of heating a supported wafer (page 6, paragraph 67).

### ***Claim Rejections - 35 USC § 103***

17. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

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18. Claims 4 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kroeker as applied to claims 1-3, 5-6, 8,13-14, 17 and 19 above, and further in view of U.S. Patent No. 6,042,324 to Aggarwal et al.

19. Kroeker discloses the invention substantially as claimed and as described above.

20. However, Kroeker fails to teach the loading station as a front opening unified pod (FOUP).

21. Aggarwal et al. teach using a FOUP for the purpose of transferring wafers between apparatus and isolating them from contamination (column 1, rows 11-27).

22. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a FOUP in Kroeker in order to transfer wafers between apparatus while isolating them from contaminants as taught by Aggarwal et al.

23. Claim 7, 15 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kroeker as applied to claims 1-3, 5-6, 8,13-14, 17 and 19 above, and further in view of U.S. Patent Publication No. 2002/0033136 A1 to Savage et al.

24. Kroeker discloses the invention substantially as claimed and as described above.

25. However, Kroeker fails to teach a wafer support with an integral cooling unit.

26. Savage et al. disclose a load lock chamber including a pedestal having an integral cooling unit for the purpose of cooling processed wafers before they are removed from the load lock to minimize wafer transfer failures resulting from thermally warped wafers and cassette failures from high temperature post-processed wafers (page 5, paragraphs 60-64).

27. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an integral cooling unit in the load lock chamber of Kroeker in order to cool processed wafers before they are removed from the load lock to minimize wafer transfer failures resulting from thermally warped wafers and cassette failures from high temperature post-processed wafers as taught by Savage et al.

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28. With respect to claim 20, Kroeker further fail to teach at least one of the plurality of processing units is capable of heating a supported wafer.

29. Savage et al. teach at least one of the plurality of processing stations capable of heating a supported wafer (page 6, paragraphs 67 and 68) for the purpose of preheating a wafer prior to processing.

30. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided processing units capable of heating a supported wafer in Kroeker in order to preheat a wafer prior to processing as taught by Savage.

31. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kroeker as applied to claims 1-3, 5-6, 8,13-14, 17 and 19 above, and further in view of U.S. Patent No. 5,314,541 to Saito et al.

18. Kroeker discloses the invention substantially as claimed and as described above.

19. However, Kroeker fails to teach a wafer support with an integral heating unit

32. Saito et al. teach the single wafer support of the first single-wafer load lock including a single pedestal having an integral heating unit (column 6, rows 42-44 and column 8, rows 17-24) for the purpose of effectively preventing the adhesion of moisture.

33. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided the single wafer support of the first single-wafer load lock including a single pedestal having an integral heating unit in order to prevent the adhesion of moisture as taught by Saito et al.

#### ***Response to Arguments***

39. Applicant's arguments, see Paper No. 7, filed 03/07/03, with respect to the rejection(s) of claim(s) 1-8 and 14-16 have been fully considered and are persuasive. Applicant argues that the load lock of Savage et al. is capable of accommodating two wafers at one time. While the apparatus of Savage et al. only processes one wafer at a time using a single wafer stage, it is capable of holding two wafers when

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the robot handler is inserted into the chamber because the robot handler has two hands. Therefore, Savage et al. fails to disclose the feature as presently defined and recited by Applicant's specification and claims, where the load lock is only capable of accommodating one wafer at any time, not just during processing. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made using Kroeker.

40. Applicant's arguments filed 03/07/03 with respect to claims 13 and 17-20 have been fully considered but they are not persuasive. Applicant argues that claim 13 recites that there are several load locks coupled to the same process module and that Savage et al. fails to disclose this feature. Examiner disagrees. Savage et al. teach a plurality of processing stations (40), which together make up a processing module, as claimed. While there may be structural differences between the Savage et al. and the present invention, these differences are presently not sufficiently detailed in claim 13 to define over Savage et al.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 703.305.3142. The examiner can normally be reached on Monday-Friday, 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703.308.1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703.872.9310 for regular communications and 703.872.9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0661.

km  
May 18, 2003

  
GREGORY MILLS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700